DUODENAL PERFORATION INTO RETROPERITONEUM BY A BILIARY STENT

PERFURAÇÃO DUODENAL PARA O RETROPERITONEU POR PRÓTESE BILIAR

INÊS ALEGRE[1], JORGE REBANDA[2], CARLOS RESENDE[2], CARLOS NEVES[3]

[1] General Surgery Resident
[2] General Surgery Attending Physician
[3] Chief of General Surgery

Serviço de Cirurgia Geral I, Hospital São Francisco Xavier – Centro Hospitalar Lisboa Ocidental, Lisbon, Portugal

SUMMARY

Migration of endoscopically placed biliary stents is a well-recognized complication of endoscopic retrograde cholangiopancreatography (ERCP). Duodenal perforation by a biliary stent is an uncommon but hazardous complication associated with a high mortality rate. It can be either retroperitoneal, causing biloma, or intraperitoneal leading to biliary peritonitis. Duodenal perforation into the retroperitoneum presents itself as a non-specific condition. It requires an extremely high index of suspicion for its early diagnosis. A delayed diagnosis seriously aggravates the prognosis. We report a case of mortality secondary to a duodenal perforation into retroperitoneum by a biliary stent endoscopically placed with an atypical symptomatology.

Key words: *ERCP, biliary stent, duodenal perforation*

RESUMO

A migração de próteses biliares colocadas endoscopicamente é uma conhecida complicação associada à colangiopancreatografia retrógrada endoscópica. Embora rara, a perfuração duodenal por próteses biliares é uma complicação grave associada a elevada mortalidade. Esta pode ocorrer para o retroperitoneu, causando um biloma, ou intra-peritonealmente causando uma peritonite biliar. A perfuração duodenal para o retroperitoneum apresenta-se de forma inespecífica e requer um elevado índice de suspeição para o seu diagnóstico precoce, uma vez que o diagnóstico tardio agrava o prognóstico. Descrevemos um caso de mortalidade secundário a perfuração duodenal por uma prótese biliar colocada endoscopicamente, cuja forma de apresentação foi atípica.

Palavras-chave: *CPRE, prótese biliar, perfuração duodenal*

BACKGROUND

Endoscopic retrograde cholangiopancreatography (ERCP) is widely performed as a diagnostic and therapeutic tool and it is considered a safe procedure. Nevertheless, ERCP has a major complication rate of approximately 10% and a death rate of 1,0 to 1,5%.[1]

Perforation is the least frequent complication related to ERCP. It occurs in about 1% of the patients and it is associated with a death rate of 7,8 to 18%.[1, 2]

Migration of endoscopically placed biliary stents is a well-recognized complication of ERCP. Fortunately, less than 1% of migrated stents cause intestinal perforation. From those, the vast majority occurs in the duodenum, causing a biliary peritonitis or a biloma.[3] In one review, stent insertion or migration was responsible for 2% of cases of ERCP related perforations.[2]

CASE REPORT

We present a case of a 57-year-old caucasian male diagnosed with a left colon stenotic adenocarcinoma and synchronous hepatic metastases. A left hemicolectomy was performed. Hepatic metastases were mainly located in the right liver with only one metastasis being detected in the segment I of the left liver. After chemotherapy, a right hepatectomy and a metastasectomy of the left segment I were performed, without intraoperative complications.

In the postoperative period, the patient presented with a bilious abdominal drainage. Due to the high volume of the biliary leak, a ERCP was performed; a sphincterotomy was performed and a plastic biliary stent (12 x 0,7cm) was placed with its proximal tip at the bifurcation of the left biliary duct.

On the day after ERCP the patient was asymptomatic, and the abdominal drainage had no evidence of bile. A lipase elevation three times above the normal values was noted, as well as a discrete C-reactive protein rise with a normal white blood cell count. Abdominal and chest radiography showed neither free air under the diaphragm nor outlining the right kidney. The patient was kept under nil by mouth. Few hours later, the patient started complaining of an isolated right scrotal pain. On abdominal examination, the patient presented no abnormal signs such as abdominal pain or inguinal hernias.

Forty-eight hours after ERCP the pain located in the right inguinal area persisted and additionally abdominal palpation was painful in the hypogastrium, without signs of peritonitis. A urinary tract infection was excluded. During the next few hours, the patient status deteriorated progressively with tachycardia, hypotension, oligoanuria and a white blood cell count of 17,800. He was started on antibiotics with meropenem and vasoactive amines (dopamine).

Urgent computed tomography (CT) scan (Fig. 1 and Fig. 2) showed the proximal tip of the biliary stent located at the bifurcation of the left hepatic duct and the distal tip outside the wall of the second part of duodenum into the retroperitoneum, involved in a fluid collection with extra luminal gas. Collected fluid located mainly in the retroperitoneal spaces, extending to the psoas muscle, the pelvis and the Retzius space was also evident.

The patient was immediately operated on. After a Kocher maneuver, the biliary stent was found exteriorized to the retroperitoneum at the second part of the duodenum (Fig. 3), with massive necrosis of the retroperitoneal tissues and fat. The stent was completely withdrawn, and the duodenal

Fig. 1 – **Coronal CT scan showing the distal tip of the biliary stent outside the duodenum wall and fluid collections.**

Fig. 2 – **Coronal CT scan showing the distal tip of the biliary stent outside the duodenum wall and fluid collections.**

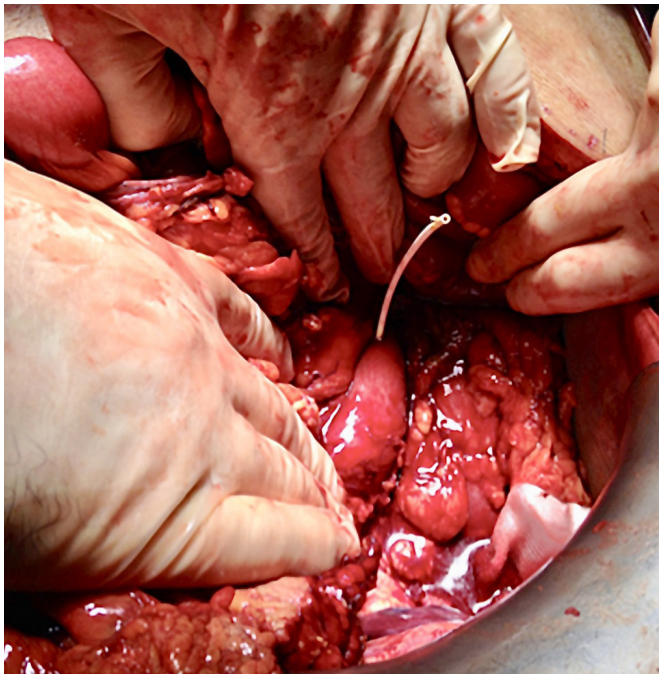

Fig. 3 – **Intraoperative image showing the biliary stent exteriorizing the duodenum.**

wall was closed. An exclusion of the pylorus and a gastroenterostomy were performed and the retroperitoneum was debrided and drained.

Despite a vigorous reanimation, the patient hemodynamic status continued to deteriorate during surgery and he died at the end of the procedure.

DISCUSSION

Biliary stent migration occurs in up to 10% of patients, particularly in those without malignant stenosis of the bile duct or papilla.[3, 4] Stent related factors such as the type, length and caliber of the stent are related to the risk of migration. Inappropriately long stents may cause perforation without migration by exerting pressure on the duodenal wall causing tissue necrosis and perforation. The perforation may be either retroperitoneal causing biloma or intraperitoneal leading to biliary peritonitis.[3]

In our case, the proximal part of the biliary stent was found partly in the biliary duct and the distal part was perforating the duodenum causing a total bile diversion into the retroperitoneum. The activated pancreatic enzymes led to a massive necrosis of the retroperitoneal tissues. Issa et al. described a similar case in which the proximal part of the biliary stent was found in the biliary duct and the distal tip perforating the duodenum causing biliary leak into the peritoneal cavity with biliary peritonitis. Other cases are reported describing duodenal perforations into the retroperitoneum by biliary stent causing biloma.[3]

Duodenal perforations due to the migration of biliary stents are a rare finding and should be included in the differential diagnosis of patients presenting with abdominal pain after ERCP with stent placement. Moreover, perforation into the retroperitoneum makes peritonitis a late finding and may mask its severity.[1] In these cases, patients may be initially asymptomatic or complain of mild epigastric pain, which is a common symptom in patients with retroperitoneal duodenal perforation from other origins.[5, 6] Likewise, tachycardia is a constant finding, but it is not specific of this complication.[2] Even in the most severe setting,

presenting symptoms are non-specific and are similar to other acute abdominal pathologies.[6]

Bearing all this in mind, the diagnosis of the duodenal perforation into the retroperitoneum is usually difficult based on clinical grounds alone and it requires an extremely high index of suspicion.

Though either conservative or endoscopic treatment options are described for ERCP-related perforations, clinical and CT scan findings should guide towards a surgical management.[2] A patient presenting with high fever and signs of sepsis or peritoneal irritation on clinical examination requires surgical exploration. Similarly, radiological evidence of multiple retroperitoneal collections also mandates exploratory surgery.[6]

As described in the present case, a delayed proper treatment carries a worse prognosis, despite a proper resuscitation and surgical treatment.[2]

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Correspondência:

INÊS ALEGRE

e-mail: i.alegresantos@gmail.com

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